Research Note

SPECIES SUITABLE FOR THE PRODUCTION OF EDIBLE SEED SPROUTS[1]

Nutritionally, seeds usually are considered to be the best part of the plant. They contain good quantities of protein, vitamins, and oils, and often minerals and carbohydrates. Some of these nutrients increase during germination. For example, the content of vitamin C is several times higher in the sprout than in the seed.[2] According to Kakade and Evans,[3] germination of seeds has the following effects: Increases protein content; lowers and then later increases trypsin inhibitor activity, but does not change the activity of hemagglutinins. It is believed that sprouting also reduces the flatulent tendency and the poisonous quality of many seeds.[4]

The importance of the seed germination technique in the tropics as a method for increasing food value, and the need for scientific studies of the technique were emphasized in a report by the National Academy of Sciences.[4] The present study was made to evaluate different species of sprouted seeds as possible sources of foods with a high nutritive value. Several methods were tested for germinating 33 species of seeds, until a simple, satisfactory method was developed. The seeds were placed on a wet paper towel on a glass plate suspended over a container of water. The ends of the paper towel extended into the water below, so that absorbance kept the paper wet. About 25 grams of seed were used for each test. Seeds were pretreated 6 hours in a solution of 5 g household detergent per liter of water to eliminate fungi. The seeds were kept in darkness at 26–28° C and were observed daily to determine the time required for germination. Seeds not germinating normally were removed the third day to avoid rotting and prevent development of disagreeable odors. Sprouts were evaluated when they were 2.5 to 5 cm long, usually after 4 or 5 days. The following characteristics were recorded: Days to germinate, appearance, odor, flavor, fiber content, and overall estimate of value raw. The same types of seed characteristics were rated from 1 to 5; 1 indicated very undesirable and 5, highly desirable.

Seeds tested but rejected as unsuitable for sprouts included seeds of

[1] Manuscript submitted to Editorial Board March 25, 1976.

[2] Fordham, J. R., Wells, C. E., and Chen, L. H., Sprouting of seeds and nutrient composition of seeds and sprouts, J. Food Sci. 40: 552–6, 1975.

[3] Kakade, M. L., and Evans, R. J., Effect of soaking and germination on the nutritive value of navy beans, J. Food Sci. 31(5): 781–3, 1966.

[4] Pariser, E. F. (ed), Food Science in Developing Countries. A Selection of Unsolved Problems, National Academy of Sciences, National Research Council (USA), 79 pp., 1974.

TABLE 1.—*Varieties of seeds selected for sprouting*

Scientific name	Common name	Days to germinate	Appearance[1]	Odor	Flavor	Fiber content	Uncooked value	Cooked value
Dolichos lablab	Hyacinth bean	3	3	3	4	4	4	4
D. lablab	PI 219696-1	3	3	3	4	4	4	4
D. lablab	PI 164772	4	3	3	4	4	4	4
D. lablab	PI 195851	4	4	4	4	4	4	4
D. lablab	PI 164772	4	3	3	4	4	4	4
Glycine max	Soybean	3	5	4	5	4	5	5
Hibiscus cannabinus	Kenaf, Everglades	4	5	5	4	4	4	4
Medicago sativa	Alfalfa	4	2	3	4	2	4	4
Phaseolus aureus	Mung bean	3	4	4	4	5	4	4
Paseolus vulgaris	Common bean, Blanca del País	5	4	4	5	4	5	5
	Naranjito	4	4	3	4	3	5	5
	Black bean	4	2	3	4	5	4	5
Triticum aestivum	Wheat	5	4	5	4	2	4	5
Vigna unguiculata	Cowpea	4	3	4	4	3	4	5

[1] 1 indicates very undersirable, and 5, highly desirable.

Leguminosae, Compositae, Cucurbitaceae, Malvaceae, Gramineae, and Solanaceae. The principal defects of the rejected seeds were strong or bitter flavors, and persistence or hardness of the seed coat. Disagreeable odors of some sprouts, especially of okra, watermelon, kenaf, and sorghum, detracted decidedly from the overall estimates of cooked and raw value.

Fourteen species produced acceptable sprouts (table 1). The following five legumes were very outstanding: The common bean varieties Blanca del País and Naranjito, the mung bean, the cowpea, and the soybean. The *Dolichos lablab* beans, while selected as suitable for sprouts, were of somewhat less overall quality than the other legumes. The local bean, Blanca del País, combined several desirable characteristics. Its appearance is good, the seed coat separates during cooking and is removed easily, the odor of the sprouts is agreeable, and the flavor approximates that of normally soaked and boiled beans, and fiber content is very low. The soybean was also outstanding as a sprout on the basis of its rapid and dependable germination, excellent appearance, and agreeable, but distinctive, flavor.

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